



# Exudates Dynamic Detection in Retinal Image

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## **Abstract**

*Vision is the most important role in our life because without vision don't do anythings. So the protection of vision from any disease is the most important. Many of the image processing techniques are used for detect retinal problems. But all techniques are used to detect the disease. In this paper, introduce new technique to detect the retinal problems so it is useful for preventing from the retinal disease.*

## **1. Introduction**

Retinal image is processed and then detect the exudates in it by using Median Filter. So it is very useful to detect the retinal problem in the preliminary stage. So the treatment is easy and which has more possibilities for cure the disease. Hussain *et al* [3] has presented an automated method for detection of hard as well as soft exudates. The author has used a split and merge technique. This method is based on the technique of coarse to fine segmentation principle. Local variation operator is used for Coarse exudates detection. Fine Exudates detection is obtained by adaptive thresholding technique. Thus a vast improvements in the results can be observed due to the combination of fine and coarse exudates. The author have used 140 images from different databases that are available globally. 89 images from DIARETDB1, 17 images from MESSIDOR and 17 images from DRIVE database were taken. This method

has also given the comparison of different methods using DIARETDB1 database. It provides with the improvement in the specificity and accuracy measure and reasonable sensitivity. It occasionally fails to exclude some non exudates object particularly to those that have similar features to real exudates.

JayaKumari *et al* [4] proposed a method for detection of exudates using contextual clustering technique. This technique has included the pre-processing of retinal images for the segmentation of hard exudates. In this study, a state-of-art image processing techniques which is used for automated detection of the presence of hard exudates in the fundus images are introduced. After the contrast adaptive histogram equalization as pre-processing stage, contextual clustering algorithms have been applied to segment the exudates. The key features are like the standard deviation, mean, intensity, edge strength and compactness of the segmented regions are extracted and fed as inputs into Echo State Neural Network (ESNN) to discriminate between the normal and pathological image. A total of 50 images have been used to find the exudates out of which 35 images consisting of both normal and abnormal are used to train the ESSN and the remaining 15 images are used to test the neural network. Furthermore, it confirms 93.0 sensitivity and 100 specificity in terms of exudates based classification.

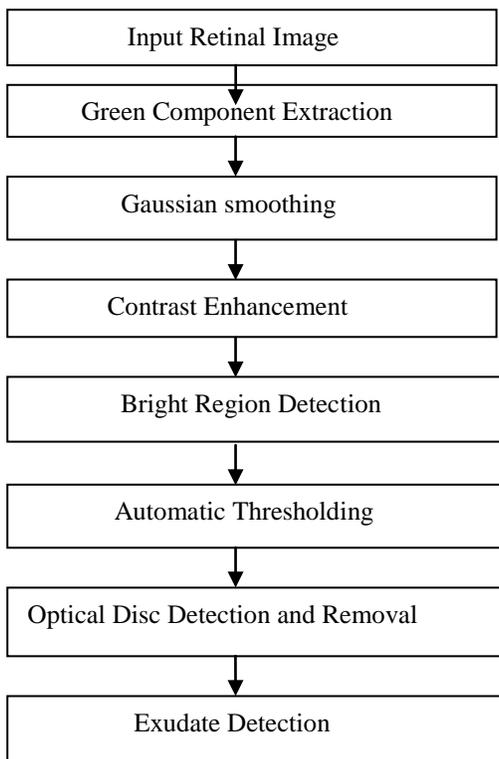
## 2. Existing System

In existing work, it contains the image processing technique for fundus image with uneven illumination. It also uses Naïve Bayes Classifier for preprocessing, macula detection and feature extraction. But the existing methods do not detect the retinal image fault in early stage which provides low quality image.

## 3. Proposed Work

In the proposed method we have applied median filtering onto the input image directly if it is in grayscale, otherwise we have to convert the input image into grayscale before applying median filtering. In the next step we have subtracted the median filtered image from the input image (grayscale). After the subtraction we have found that the optic disk is eliminated which often produces almost similar intensity as that of hard exudates. Then we have calculated the thresholding value which is later used in the thresholding step. Finally image addition is performed between the input image (grayscale) and the threshold image.

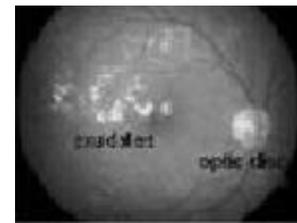
**Steps:**



## Exudates Detection in retinal images



*(a) Original image*



*Grayscale image*



*Detection of Exudates*

## 4. Conclusion

The previous algorithms work in low quality in the retinal images. This paper produces the early detection of exudates in the retinal image. The clear foundation of the image is detected from clear boundaries by using the technique of morphological gradient technique which classifies the discriminate exudates from other bright non-exudates. Thus the proposed method is so useful to detect exudates early which is useful to reduce the vision loss occurs.

## 5.Experimental Result



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